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GEOGRAPHICAL RECORD.

AMERICA.

CHANGES IN THE ELEVATION OF LAND AND SEA AT NEW YORK CITY.—Mr. George W. Tuttle, discussing this question in the *American Journal of Science* (May, 1904), refers to the paper of the late Professor George H. Cook before the American Association for the Advancement of Science in 1857, in which he summarized the data which had led him to conclude that a gradual subsidence of the land was in progress throughout the whole length of New Jersey and Long Island, and inclined him also to think that it extended along a considerable part of the Atlantic coast. The self-registering tide gauge had only recently been introduced when Professor Cook read his paper, and tidal observations could not be obtained to determine the rate of subsidence. Since that time long series of tidal observations have become available; and upon the records obtained at Governor's Island, Sandy Hook, Fort Hamilton, and at two or three other points, for which Mr. Tuttle gives the annual means, he deduces conclusions as to the relative changes in the elevation of earth and sea in this neighbourhood. He also combines the results of the local observations with the facts that seem to have been established along the Baltic and other coasts, and sums up as follows the outcome of this study of tidal observations on both sides of the Atlantic:

(1) The mean sea-level oscillates in an irregular manner, having an average period of about eight years. These oscillations closely resemble one another at many ports distant from each other, and appear to be largely due to changes in atmospheric pressure and the resulting changes in wind velocities.

(2) The above oscillations compensate themselves completely in the course of time, and do not give rise to a continuous movement in a given direction.

(3) In addition to the above movements of the sea some ports show a more or less continuous rising of the sea relatively to the adjacent land; others a lowering of the sea-level in its relation to the land, and still others maintain a constant relation between the two. These latter make it clear that, except for the periodic changes noted above, the sea does not change its level, and that the relative changes are due to land movements.

(4) At various ports the rate of change in the elevation of mean sea-level referred to the adjacent land has not remained constant, but has varied to a considerable degree. All the observations show that for long periods the rate of change is less than took place in some part of the period, and the evidence is strong that the movement is not continuous, but oscillatory and confined within narrow limits.

(5) The observations at New York City show that since 1875 the land has been

subsiding relatively to mean sea-level by about 1.45 feet per century; but from the establishment of the self-registering tide gauge in 1853 to 1875 little or no change had occurred, and it is improbable that the present rate of subsidence will be continued indefinitely.

RAINFALL AND CROPS IN CALIFORNIA.—The relation of plants to the annual rainfall of any locality has always been a matter of interest, and has received a good deal of attention. The question is not a simple one to answer, because of the complications which arise from the influence of other factors than the rainfall, *e. g.*, the moisture of the soil, the character and distribution of the rainfalls, the time of planting, the kind and condition of the seed, the method of cultivation, etc. In a recent number of the *Monthly Weather Review* (January, 1904) there are given rainfall data compiled for San Francisco by Professor A. G. McAdie, which are of interest in this connection. Fifty-four years at San Francisco give an average annual rainfall of 22.74 inches, the annual variability, or probable variation of any year from the mean, being ± 4.00 inches. In other words, there is an even chance that any year at San Francisco will have a rainfall either between 26.74 inches and 18.74 inches or beyond these limits. During the fifty-four calendar years of records there has been one year with a rainfall of 11.37 inches, or 50% of the mean rainfall. The general distribution of the rainfall by calendar years is as follows:

TABLE I.—PRECIPITATION BY CALENDAR YEARS.

PERCENTAGE OF NORMAL.		PRECIPITATION IN INCHES.	NUMBER OF YEARS.	
Wet years,	above 100%	Over 22.74		22
Dry years	100-90%	22.74-20.47	13	32
	90-80%	20.47-18.19	7	
	80-70%	18.19-15.92	5	
	70-60%	15.92-13.65	5	
	60-50%	13.65-11.37	1	
	50-00%	11.37- ..	1	
				54

As far as crops are concerned whose prosperity depends on the winter rainfall, from October to April, inclusive, the rainfall should be averaged for the crop year, July–June, inclusive, rather than for the calendar year, January to December. When the San Francisco rainfall is thus summarized, as shown in the second table, the frequency of the dry years comes out differently, *i. e.*, there have been fewer dry seasons, but more severe droughts than are shown in the first table by calendar years:

TABLE 2.—PRECIPITATION BY CROP YEARS.

PERCENTAGE OF NORMAL.		PRECIPITATION IN INCHES.	NUMBER OF YEARS.	
Wet years, above 100%		......		26
Dry years	100–90%	22.74–20.47	7	28
	90–80%	20.47–18.19	9	
	80–70%	18.19–15.92	6	
	70–60%	15.92–13.65	1	
	60–50%	13.65–11.37	1	
	50–00%	11.37– ..	4	
				54

Professor McAdie states that the year 1885, which had a rainfall of 24.90 inches in the calendar year, but only 18.10 inches in the crop year 1884–85, was an "agricultural drought," with the lowest wheat yield in twenty years. The year July, 1881, to June, 1882, gave a seasonal rainfall of 16–14 inches, and the next year, July, 1882, to June, 1883, gave a rainfall of 20–12 inches, and yet these were good wheat years.

Discussions of this kind are of great value in all studies of climate and crops. An interesting contribution to this same general question may be found in Hinrichs' "Rainfall Laws, deduced from Twenty Years of Observations," Washington, 1893, referred to in the English translation of Hann's *Handbuch der Klimatologie.*

R. DEC. W.

DEATH GULCH.—In *Science* for April 15, 1905, Dr. F. W. Traphagen contributes some notes on Death Gulch, in the Yellowstone National Park, a locality which has its greatest interest in the excess of carbon dioxide found there. In 1898 Mr. W. H. Weed, of the U. S. Geological Survey, found the bodies of five bears, one elk, and many small mammals at the bottom of the gulch, and concluded that death had been due to poisonous gas. In 1897 Dr. T. A. Jaggar, of Harvard, found the carcasses of seven grizzlies and one cinnamon bear. On May 3, 1898, the carcasses of eight bears were found by a corporal from the Soda Butte Station, who reported a feeling of dizziness at the bottom of the gulch, followed by a headache. On May 28th, 1898, the carcasses of seven bears and of one fox were seen. On August 10, 1902, a private found the carcass of one bear, which had recently died. Dr. Traphagen, in 1900, counted the carcasses of four large bears, and saw the remains of many other animals, represented by bones, with occasional tufts of hair. A smell of sulphuretted hydrogen was noticeable. In August, 1903, an analysis of the air at the bottom of the gulch showed the presence of more than 10 per cent. of carbon dioxide, and strong traces of sulphuretted hydrogen. The gas literally poured from fissures on the sides of the gulch. At one crevice (14 by 4 inches) an analysis of gas showed more than 50 per cent. of carbon dioxide, and a little over 1 per cent. of sulphuretted hydrogen, although these figures are, if anything, too low. The wind blew at a fair velocity throughout the time when the tests were made, so that the conditions were favourable for a rapid diffusion of the gases. Sulphuretted hydrogen, when existing as from one part to three parts per 1,000, causes animals to die in ten minutes (Lehman), and it may be concluded, says Dr. Traphagen, that about one-tenth per cent. in air is sufficient to produce fatal results. Probably this gas would be more dangerous when associated with large amounts of carbon dioxide. The action of the gases of Death Gulch is intermittent, as was shown by the presence of maggots, which lived for a time, and were later killed when the gas became stronger. Flies caught and held in the gas escaping from the crevices died after ten seconds' exposure. All the members of the party noted a feeling of dizziness; while one had nausea, and another headache in addition. Dr. Traphagen, while working on his analyses, was almost overcome by the gas, and needed assistance in getting to fresh air. These analyses are the first from this interesting district, and are a decided addition to our knowledge of the peculiar conditions there found.

R. DeC. W.

CUSPATE FORELANDS.—The subject of cuspate forelands, or cusp-shaped bars, has already a literature of considerable size. Such large cusps as Capes Hatteras, Fear, Lookout, etc., have been studied chiefly from maps, but numerous small cuspate forelands have been described on the basis of actual field work. For the larger cusps a rather mysterious series of eddies from the Gulf Stream has been postulated; and tidal and other currents have been called on to account for some of the smaller cusps in arms of the sea. The writer of this note has described several perfect cusps (Amer. Geol., XXII, 1898, 1–12) in the Bras d'Or Lakes of Cape Breton, and assigned their origin to the work of wind waves approaching the coast diagonally. Recently (Journ. Geol., XII, 1904, 106–132) Mr. A. W. G. Wilson has described a series of cuspate forelands along the Bay of Quintè, on the Canadian side of the eastern end of Lake Ontario, in which he reaches a similar conclusion, eliminating, as the reviewer had done in the Bras d'Or Lakes, the possibility of current action. Wilson concludes that the material has been brought by waves associated with 'longshore currents; that the location of the cusps is due to the influence of "some more or less salient feature of the coast"; and that "their formation is due to the control exercised on wind direction and on wave direction by the form of the bay."

In view of the independent testimony of two workers in different fields that wave action is the cause for cuspate forelands in each of the instances studied, and, furthermore, in view of the fact that the hypothetical cusp-forming currents postulated to account for the large cuspate forelands are not even known to exist, and that the question of the influence of waves in making such forms has never been critically applied to the larger cusps, it seems important that some student of the subject should consider the application of the wave theory to these larger cusps. R. S. T.

FRACTURE VALLEYS.—Many years ago the explanation of valleys as the result of faults and fissures was common, and this explanation was made to do service on every hand. When the inevitable reaction set in against the absurd application of this theory, and when field studies brought evidence of absolute independence of valleys and neighbouring profound faults, it became the custom to consider faults and fissures as of very minor importance in the guidance of stream work. Several European geologists have, however, brought forward evidence that fracture lines have had a profound influence on topography, and recently Hobbs has brought this view prominently before American physiographers in his papers on the physiography of Connecticut. It is too early to pronounce positive opinion upon the full value of Hobbs's conclusions in the field in question, but it seems certain that he has succeeded in pointing out a weakness in the work of physiographers, by whom the full significance of joints and other fracture lines has not been appreciated. One of the first fruits of Hobbs's papers is found in a recent article by Professor Iddings (Journ. Geol., XII, 1904, 94–105), in which he discusses the drainage features of a part of the Yellowstone River valley north of the Yellowstone National Park. This region he had previously studied, but not with the possibility of a fracture drainage system in mind. On recently considering the question he finds numerous reasons for believing that the valleys of this region are guided by fracture lines, and his paper is a statement of these reasons. He notes, among other evidences, a remarkable parallelism and angularity of the stream courses and a persistence of drainage lines across rocks of very diverse nature. Moreover, there is an apparent relation between stream courses and known fracture lines. It is not to be doubted that, now the matter is brought prominently forward, numerous cases will be found where joint planes and other fracture lines have had a decided influence on stream courses. R. S. T.

FOSSIL TOPOGRAPHY.—It is by no means uncommon to find ancient topography revealed in cross-section where deep river valleys are cut down through some buried land surface; but ancient land surfaces, stripped and exposed to view as present-day topography, are not common. Considerable interest, therefore, attaches to Bayley's description of such a fossil topography in the Menominee Iron-bearing District of Michigan (Monograph, XLVI, U. S. Geol. Survey, 127–129). He points out that in its major features the present land surface is of pre-Cambrian origin, having been buried and preserved to the present time beneath Cambrian sandstones. The hills of this resurrected topography are higher, but less sharp and rugged, than those of the pre-Cambrian land, which was, moreover, cut by deep and narrow gorges preserved to us by sandstone fillings, not yet removed. Several of these preserved valleys have been revealed in the mining operations. The presence of gorges and valleys in the old land surface where none now exist explains the occurrence of certain of the ore deposits in positions where present topographic conditions are not especially favourable to their development. R. S. T.

CURRENTS ON THE SOUTHEAST COASTS OF NEWFOUNDLAND.—The Canadian Department of Marine and Fisheries has just published a pamphlet under the title "The Currents of the Southeastern Coasts of Newfoundland," giving the results of the examination by the Tidal and Current Survey in 1903 of the currents along the European steamship route near those coasts. It was found that at all points along the steamship route, when more than five miles from the shore, there are no currents throughout the season in any direction that exceed a knot an hour. The only exception is the polar current, which sets very constantly to the southwest, for thirty or forty miles off the east coast with a maximum speed of 1.15 knots. On the south coast, within four or five miles of the shore, the current is chiefly governed by the tide, and sets in opposite directions alternately. Farther out the tendency increases for the direction of the current to veer completely around the compass. The flat or pan ice runs with the surface current, and is much influenced by the wind; while icebergs indicate the average movement of the body of water as a whole, and the wind has little or no effect on them. Sealers, when working against a gale of wind, moor their vessel to an iceberg and lie in its lee; as they express it, the wind takes no hold on an iceberg.

CROPS, LAST YEAR, IN THE CANADIAN NORTHWEST.—A bulletin issued by the Canadian Department of Agriculture says that the total grain crop of Manitoba and the Northwest Territories in 1903 was: Wheat 56,228,437 bushels; oats, 47,215,479; barley, 10,448,461; linseed, 857,292. The area under crops in the Territories, this year, is estimated at 1,706,100 acres—an increase of 300,000 acres. A recent report of the United States Department of Agriculture gave the average yield of wheat for the past ten years, in North and South Dakota, at eleven and nine bushels respectively, while Manitoba claims an average yield of 20.1 bushels to the acre in the same period.

The number of immigrants into Canada in 1903 was 128,364, or nearly double the number of the previous year. Of the newcomers, 49,473 hailed from the United States, 32,510 from England and Wales, 9,282 from Scotland and Ireland, and 10,141 from Galicia (Austria-Hungary). Most of the immigrants go at once to the farm lands of the Northwest. The Canadian Department of the interior has recently issued a new and attractive guide-book for immigrants, entitled "Geography of the Dominion of Canada." It contains thirty-one large and small maps, besides many diagrams, pictures, statistics, and a large mass of information on the economic aspects of Canada.

AFRICA.

IMPORTANT RESULTS OF BOUNDARY DELIMITATIONS. — Reuter reports from Africa that an important result of the delimitation of the Anglo-Congo-German boundaries, which has been in progress for a year and a half to the west of Victoria Nyanza, is the discovery that the whole of Albert Edward Nyanza belongs to the Congo Free State, though its eastern shore has hitherto been represented as being in the British Protectorate of Uganda. In other words, the boundary between the two countries is found to be considerably east of its supposed position. Great Britain thus loses an important strip of country, including the valuable salt deposits at the north end of Albert Edward Nyanza. That country is, perhaps, fully compensated by the further discovery that the Anglo-German boundary was inaccurately placed on the maps, and that, in fact, the whole of the lower third and navigable portion of the Kagera, the largest affluent of Victoria Nyanza, is in British territory instead of in German East Africa, as it has been shown on the maps.

THE PORT OF BIZERTE.—*La Compagnie du Port de Bizerte*, of Paris, has sent to the Society a volume of 140 pages, *Le Nouveau Port de Bizerte*, which commemorates the completion of the fine harbour works that have given to Tunis a port with first-rate modern conveniences and to France a splendid naval station. The geographical description of the place and its surroundings is from the pen of Onésime Reclus. The marked contrasts between the old and modern city, the building of the new port and the stimulus it has already given to the growth of Bizerte and its commerce, are fully portrayed. Many pictures and a number of maps show the city as it now is, and all the details of the new harbour, with its long jetties protecting the shore from Mediterranean storms, and the canal leading from these quiet waters past the new town on one side and the coal dépôts on the other to the inner port, one of the safest and most commodious of harbours. While the commercial development is still in its early stages, encouraging growth is indicated by the fact that the total number of vessels arriving increased from 455 in 1891 to 1,104 in 1902, the imports from 8,761 to 119,084 tons, and the arriving and departing passengers from 1742 to 9,811.

THE EASTERN DESERT OF EGYPT.—Very few attempts have been made to study in scientific detail the Egyptian Desert east of the Nile. As Schweinfurth and a few others have shown, it contrasts strongly with the desert west of the Nile. The latter is an almost unbroken expanse, without any prominent ridge for hundreds of miles; while the Eastern or Arabian Desert is a wilderness of ranges rising from 1,000 to 2,000 metres, surrounded or flanked by a maze of low hills. Only towards the Nile does it show the broad plateau character and abrupt escarpment that mark the Nile valley.

The " Topography and Geology of the Eastern Desert of Egypt, Central Portion," is one of the most valuable of the reports that the Geological Survey of Egypt has recently issued. It was written by T. Barron and W. F. Hume, who give the topographical and geological results of two practically independent survey parties in 1897-8. The region surveyed may be roughly indicated as lying between the parallels of 26° and 28° N. and between the meridian of 33° east and the Red Sea. The volume of 331 pages contains numerous maps and handsome photogravures, showing many striking aspects of the desolate region. A few nomadic Arabs now wander over it, most of the population living near the seacoast or the Nile. During the Roman occupancy the region was turned to rather more account, and many quarries of ornamental building stone were worked and also deposits of iron ore.

The most striking topographical results are that the flat expanses are comparatively narrow, but of great length; all the western drainage joins the Wady Qena, and thus enters the Nile valley at that town; the Red Sea hills do not form "a continuous chain, but a series of ranges, advancing in echelon, each new longitudinal massif to the south being further east, though remaining parallel to its predecessor"; the mountains are to a considerable extent cut into blocks by longitudinal and transverse rifts; the Nubian sands and softer sandstones are the chief cause of many of the great plains and minor valleys.

A mass of information on the geology of the region fills 174 pages, much of it bearing on generalizations relating to the structure of the country. Only a few of the more interesting conclusions can be mentioned here. In the raised coral beaches of the Red Sea most of them do not attain a greater thickness than four metres, and are found to be based on all kinds of rocks, whether igneous or sedimentary. The oldest sedimentary rock is the Cretaceous Nubian sandstone. The authors found that the present channel of the Nile at Qena cuts through gravels of Pleistocene Age, and they advance the suggestion that the river did not begin to flow in its present bed at that point till late Pleistocene times.

POLAR REGIONS.

CANADA BUYS THE GAUSS FOR CAPTAIN BERNIER.—The Canadian Government having paid $75,000 for the steamship *Gauss*, which was built three years ago for the German Antarctic Expedition at a cost of $125,000, Captain Bernier and a crew of 22 men were recently sent to Germany to man the vessel and bring her across the ocean. When she arrives in Canadian waters she will be sent out, under Captain Bernier, to carry relief stores and coal to the Government steamer *Neptune*, which wintered in Hudson Bay. Later this season the *Gauss* will be engaged in survey work on the coast of Labrador.

The Canadian Government had pledged its financial support to Bernier's project for Arctic exploration, provided he should first secure subscriptions to the amount of $60,000. He reported, early last winter, that all but $13,000 of the required sum had been secured. It is now said that the Government will send him to the Arctic early next year in an attempt to reach the north pole from Canada; and that his plan is to put the *Gauss* into the ice somewhere to the north or northeast of Bering Strait, in the expectation that she will drift towårds the pole.

THE PRINCE OF MONACO'S ARCTIC PROJECT.—According to *Globus* (No. 16, 1904), Prince Albert of Monaco is planning an Arctic expedition, with the north pole as his goal. He purposes to employ Nansen's plan of drifting across the polar area in the pack—a method of exploration that requires much time, but, in the opinion of Prince Albert, promises better results than any other.

PICTURES TAKEN BY THE SWEDISH ANTARCTIC EXPEDITION.—In its first number this year *Ymer* prints papers by Dr. O. Nordenskjöld, Dr. J. G. Andersson and Captain Larsen on the work of the Swedish South Polar Expedition, 1901–1903 (see BULLETIN, 1904, Jan., pp. 22–29, for Nordenskjöld's narrative). Very little of the region of Graham Land has been caught by the camera, and the photographs in *Ymer* are unusually interesting. Some of them are quite comprehensive; one taken on Seymour island discloses a part of the low foreshore of the northern part of that island with the odd truncated cone of Cockburn Island rising in the distance, and, far away, the coasts of the much larger Ross Island. Capt. Larsen took a snapshot at the sinking *Antarctic* when all that was visible was the tops of the masts and the pennon still afloat. The boiling and bubbling streak of water where she went down contrasts with the widespread ice-fields that hem it in. Another view shows the low, square stone hut in which Andersson and his two comrades lived during the winter darkness. In comparison, the comfortable house erected as the Nordenskjöld headquarters on Snow Hill is quite palatial in appearance.

GENERAL.

THE BUBONIC PLAGUE.—Dr. E. B. Barnet, Secretary of the Cuba Board of Health, wrote a paper on " La Peste Bubónica " last year which the Government has printed in Spanish for gratuitous distribution. It will be remembered that in the last decade this infectious disease was very prevalent in parts of southern Asia and that among 220,907 cases in the Presidency of Bombay 164,083 were fatal. The disease was carried to various ports of Europe and America, including New York City, but in most of the Occident, owing to the vigilance of the health anthorities, it was prevented from spreading. Among the illustrations in Dr. Barnet's pamphlet are two maps, one of them locating five areas in Asia and one in Africa which are regarded as permanent foci of bubonic plague. In these districts the disease seems never to be completely extinguished, and from one or another of them it sometimes issues to attack regions where unsanitary or climatic conditions favour its development.

These foci are in northern Tonkin, in India north of the middle Ganges, in Afghanistan northwest of Candahar, in Northern Persia between Meshed and the Caspian, in the southern part of the Euphrates and Tigris basins, and in the Benghazi district of Tripoli.

In the zone between the United States and Central America cases have occurred in recent years at nearly every important port from Mazatlan on the Pacific coast of Mexico to Havana and Matanzas. The pamphlet deals with the transmission of the disease, its diagnosis and treatment, and the sanitary measures which should be taken against it and other forms of infection.

HEALTH RESORT IN LAPLAND.—The proposed establishment of a health resort in Lapland, reported by the *British Medical Journal*, is an announcement which will occasion no particular surprise in the mind of any one at all acquainted with the great advantages which many Arctic climates possess in the summer months. It is certain that before long summer resorts will be developed in many northern lands which used to be thought ice-bound and inhospitable all the year round. The new sanatorium is to be erected on the shores of Lake Torne, a beautiful sheet of water at Wassijaure, near the terminus of the Ofote Railroad. There is a small settlement at Wassijaure, but otherwise there is no sign of man except during the occasional passage of a few Laplanders with their reindeer. As recently noticed in the BULLETIN, a scientific station has already been erected, by means of private subscriptions, the work to be done there including investigations in zoology, geology, botany, and entomology during the summer, and in meteorology and magnetism during the winter. R. DeC. W.

PELÉLITHS.—Since Hovey and others described the peculiar spine or tooth which last year rose from one side of the crater of Pelé a number of instances of peculiar volcanic spines have been described. Thus Strachey (Nature, Oct. 15, 1903) describes a peak in India which resembles the Pelé spine; Russell (Amer. Jour. Sci., XVII, 1904, 253–268) describes instances in the western United States which seem like that of Pelé; Bogoslof Island in the Aleutian chain, which rose above the sea late in the 18th century, has been compared to the Pelé spine; and Winchell (Amer. Geol., XXXIII, May, 1904, 319–325) adds other instances. He furthermore raises the question whether some of the so-called volcanic necks or plugs of the western United States, such as the peak of Mt. Taylor, New Mexico, and Mato Teepee, Sòuth Dakota, are not of similar nature. For such forms he proposes the name *Pelèliths*, and suggests that it is desirable that extinct volcanic peaks and necks be re-examined in the light of the new facts revealed by the elevation of the remarkable Pelé spine. R. S. T.

THE INTERGLACIAL PERIOD.—A recent article in Swedish by Dr. N. O. Holst, abstracted in the Geological Magazine (Decade V, Vol. I, No. 476, 1904, pp. 56–59), calls sharply in question the conclusion of numerous European glacial geologists regarding the complexity of the glacial period. Two moraines, quite different in appearance and separated by a series of stratified deposits, have been accepted by many European glacial geologists as proof of two glacial periods with an interglacial period. Holst discusses the characteristics of these deposits, and states numerous objections to the current explanation. According to his interpretation of the phenomena, the two moraines are merely different phases of deposit from a single ice invasion; while the so-called interglacial beds are of intermorainic origin and a mere phase in the deposit of a single series of ice deposits during a single ice advance. Mr. Lamplugh, who supplies the abstract for the *Geological Magazine*, says: "The doubts as to the validity of the evidence for even a single Interglacial Period, which have been expressed recently in several countries, are here put forward with great force, and it is clear that a general re-discussion of this very important question is rapidly becoming imperative." R. S. T.

EXCAVATION OF HERCULANEUM.—The London *Times* announces that the complete excavation of Herculaneum is to be undertaken. It is proposed that this vast work be carried out by the co-operation of Italy with all civilized countries, and that there be a central managing committee at Rome, with national committees elsewhere. Since the first excavations of the theatre to a depth of 27 metres, in 1738, only five small and tentative excavations have been made. No excavations on a large or comprehensive scale have ever been attempted, because the town of Resina was built over the site of the buried city, and there seemed, also, to be great natural difficulties in the way. These difficulties are said now to be overcome.

GOLD PRODUCTION IN 1903.—The *Mining and Engineering Review* says that the world's production of gold in 1903 was $327,049,750, or about $67,000,000 more than in 1901, and $28,000,000 more than in 1902. The countries contributing most largely were the United States, $74,425,340; Canada, $19,000,000; Mexico, $12,550,000; Russia, $24,000,000; Transvaal, $61,527,231; and Australasia, $88,170,909.

M. FROIDEVAUX'S PARIS LETTER.

PARIS, March 31, 1904.

The success of Capt. Lenfant's exploration makes it proper to sketch the part taken by the Comité de l'Afrique Française in aiding the development of Africa. The association was formed in 1890, at a time when the public interest in the work of our officers and explorers in Western Africa and the Congo was hardly more than platonic, though already, at the close of the year 1889, private enterprise had organized the expedition of the ill-fated Paul Crampel and that of Lieut. Mizon, on the Niger. The supporters of these undertakings founded in October, 1890, the Committee of French Africa, for the purpose of developing the influence and the commerce of France in Central, Western, and Northern Africa. There is no mention made of scientific aims; none the less the Committee has accomplished in the fourteen years of its existence a truly scientific work.

The task before it was to unite at Lake Chad Algeria, the French Sudan, and the French Congo, and to perform this it was necessary